ORIGINAL ARTICLES

Effect of Physician and Patient Gender Concordance on Patient Satisfaction and Preventive Care Practices

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OBJECTIVE: **To explore the role of the gender of the patient and the gender of the physician in explaining differences in patient satisfaction and patient-reported primary care practice.**

DESIGN: **Cross-sectional mailed survey [response rate of 71%].**

SETTING: **A large group-model Health Maintenance Organization (HMO) in northern California.**

PATIENTS/PARTICIPANTS: **Random sample of HMO members aged 35 to 85 years with a primary care physician. The respondents (N = 10,205) were divided into four dyads: female patients of female doctors; male patients of female doctors; female patients of male doctors; and male patients of male doctors. Patients were also stratified on the basis of whether they had chosen their physician or had been assigned.**

MEASUREMENTS AND MAIN RESULTS: **Among patients who chose their physician, females who chose female doctors were the least satisfied of the four groups of patients for four of five measures of satisfaction. Male patients of female physicians were the most satisfied. Preventive care and health promotion practices were comparable for male and female physicians. Female patients were more likely to have chosen their physician than males, and were much more likely to have chosen female physicians. These differences were not seen among patients who had been assigned to their physicians and were not due to differences in any of the measured aspects of health values or beliefs.**

CONCLUSIONS: **Our study revealed differences in patient satisfaction related to the gender of the patient and of the physician. While our study cannot determine the reasons for these differences, the results suggest that patients who choose their physician may have different expectations, and the difficulty of fulfilling these expectations may present particular challenges for female physicians.**

KEY WORDS: **patient satisfaction; gender concordance; female physicians.**

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Male and female physicians who deliver primary care have been shown to have different practice styles. Female physicians are more likely to deliver preventive services than their male counterparts, especially services for female patients such as Pap smears.[1–7] Female physicians also appear to communicate differently with their patients than male physicians; they are more likely to discuss lifestyle and social concerns with patients, to give their patients medical information during a visit,[8–12] and to have a participatory decision-making style.[13] However, it is unclear how communication style affects patient satisfaction.[2,8–10,13,14] Some studies have shown that female physicians spend more time with their patients than male physicians, but other studies have contradicted these results.[15]

Female and male patients also have different communication styles, with women tending to present more personal history and symptom information during a visit than their male counterparts.[16–18] Female patients also value more time and explanations from their physicians than male patients[19] and in some settings, receive more total time and communication from their physicians.[19–21]

Many studies of the influence of gender on practice style and patient satisfaction have adjusted for patient characteristics such as age, gender, and health status,[1–10,13,22] but none have directly examined or adjusted for patients' underlying health values and beliefs, which may influence both choice of physician and evaluation of the care. Some observers have speculated that patients who seek out female physicians expect a more sensitive and empathetic style of care.[12,23] Such expectations may place a greater pressure on female physicians, particularly in a competitive health care environment that emphasizes productivity and shorter visit duration.[23–25]

This study is based on a survey of patients of primary care physicians at a large group-model HMO. We examined associations of physician gender, patient gender, and the interaction between them with patient satisfaction and the delivery of primary care prevention and health promotion services. To examine these associations, we compared respondents in four dyads: female patients of female doctors, male patients of female doctors, female patients of male doctors, and male patients of male doctors. To determine whether patient selection factors such as health values and beliefs affected these outcomes, we

looked at patients who chose their own physician (among whom selection is likely to occur) and those who were assigned to a physician by the health plan.

METHODS

Study Setting and Patient Sample

The study setting was 13 facilities in the Northern California Kaiser Permanente Medical Care Program, a group-model HMO with 2.7 million members. This study was part of a larger project examining the primary care practices of physicians in different specialties at Kaiser Permanente. The study design was a cross-sectional patient survey administered to a stratified, random sample of 16,109 patients of 360 primary care physicians. Physician practices at the 13 facilities were eligible for the study if the physician had a specialty of family practice, general internal medicine, or a subspecialty of internal medicine, and had a primary care practice of at least 400 patients. Of the overall sample of physicians, 94 (26%) were women; these female physicians cared for 24% of the patients in the sample. Patients in the physician practices were sampled for study if they were between the ages of 35 and 85 years, and had been registered with their physician for at least 9 months. The survey was administered by mail during the winter of 1995-1996.

Survey Contents

The survey contents have been described in detail elsewhere.[26,27] The survey included nine items regarding patient satisfaction with their personal physician, which were modified from questions from the Medical Outcomes Study.[28] Using a rational empirical method, we generated scales with questions first grouped based on logical associations and then tested for correlation using the Cronbach α test. A scale for patient satisfaction with physician communication skills (Cronbachs $\alpha = 0.79$) was generated from four questions regarding satisfaction with physician explanations of diagnoses and treatments; spending sufficient time with a patient; showing concern for patient emotional well-being; and physician personal manner. A scale for patient satisfaction with physician technical skills (Cronbachs $\alpha = 0.62$) was generated from two questions regarding satisfaction with use of the latest medical technologies and machines; and technical skill in diagnosing and treating illness. For both scales, patients received one point for each "excellent" or "very good" physician rating.

Seven questions about health values from a published population survey [29] were modified to closely mirror the satisfaction questions. For these health values questions, patients were asked to rate the relative importance of different facets of medical care, such as a physician's technical skill. Although the highest rating for each item was "more important than anything else," patients rated each item independently and were not required to select a single item for the highest rating (i.e., more than one item could be rated as "more important than anything else"). A scale for patient valuation of physician communication skills was generated from four questions that mirrored the satisfaction questions on communication (Cronbachs $\alpha = 0.88$). Similarly, a scale for patient valuing of physician technical skills was generated from two questions that mirrored the satisfaction questions on this dimension (Cronbachs $\alpha = 0.70$). For both scales, patients received one point for rating a value as "more important than anything else."

The survey included four questions on patient health beliefs from a study of Medicare costs and service utilization.[30] These questions assessed patients' health beliefs regarding the effectiveness and desirability of the medical care provided by physicians in maintaining and restoring health. Patient mental and physical health status were measured using the SF-12 mental and physical health component scores.[31]

The survey included four questions about preventive care services received within the appropriate time interval: Pap smears (2 years), breast exams (2 years), influenza vaccines (1 year), and cholesterol screening (1 year). Each item was evaluated only for patients eligible for that service (e.g., women only for breast exam; patients over 60 or with chronic pulmonary disease for influenza vaccine).

Patients were asked about their physician's health promotion practices, noting whether they had ever received counseling from their current primary care physician in five "lifestyle" areas, including exercise, diet, alcohol consumption, HIV prevention, and smoking cessation (for patients who smoked), and four "psychosocial" areas, including family relationships, sexuality, psychological health, and violence in the home (for women only). Scales were generated from each set of questions, with patients receiving one point for each response of "yes, my doctor and I have discussed this area."

All scales in this study were transformed linearly to a 0 to 100 scale to account for the differing number of items forming each scale.

Statistical Analysis

To examine the possible influences of physician and patient sex on these outcomes, we divided the patients into four dyads: female patients of female physicians (n = 1,823 patients); male patients of female physicians (n = 607); female patients of male physicians (n = 3,649); and male patients of male physicians (n = 4,126). Each analysis included three comparisons. In the first, patients of female physicians were compared with patients of male physicians. In the second, female patients were compared with male patients. These two values were derived from one model so that the independent effects of patient gender and physician gender were estimated simultaneously.

In the third, an interaction term was included in additional models to test for an interaction between physician gender and patient gender. This term may be interpreted as indicating whether female and male patients differed in their characteristics or their ratings of their physicians depending on whether they had a female or male physician.

We used logistic regression and multiple regression techniques to examine the associations of physician gender, patient gender, and their interaction with patient health values, beliefs, self-reported primary care practices, and satisfaction and to adjust these for potentially confounding factors. Parameter estimation was performed using a generalized estimation equation approach,[32] which accounts for the cluster effect of patients sharing the same physician. In these analyses, clustering effects were minor and had little effect on the overall results. All analyses were adjusted for the patient's medical facility because of the variations in the proportion of female physicians in each facility's provider staff. Health values and beliefs and patient-reported primary care practices were adjusted for differences in patient age, race, socioeconomic status, facility, and health status. Patient satisfaction was adjusted for all of these differences, for patient health values and beliefs, and for physician age, race, specialty, and part-time versus full-time status.

We stratified all analyses according to whether patients chose or were assigned to their physician for two reasons. First, prior analyses of study data suggest that patients who chose their physician reported much higher satisfaction than those who were assigned.[26] Second, patients may choose a physician of a particular gender based on preconceived expectations or health values and beliefs, whereas assignment should distribute these values and beliefs more randomly. Therefore, analyses among patients who chose a physician may better demonstrate the possible influence of previously held values or beliefs on subsequent satisfaction.

RESULTS

Of the 16,109 patients who were surveyed, 11,494 patients responded, for a response rate of 71%. We excluded patients who indicated that their current primary care physician was not in our study (n = 886) and patients who did not answer the question of whether or not they chose their physician (n = 403), resulting in a final sample of 10,205 patients. Response rates did not differ according to the gender of the patient's physician, although patients who responded were slightly older and more likely to be female than nonrespondents.

Demographics

Female patients were more likely than male patients to have chosen their primary care physician (50.5% vs 41.9 %), and when they did choose, were more likely to select a female physician (36.4% vs 12.5%). As a result, patients in this study who chose female physicians were predominately female, whereas patients who chose male physicians were approximately evenly split between male and female. Patients choosing women physicians were slightly younger than those who chose male physicians (Table 1), regardless of the gender of the patient.

Regardless of the gender of their physician, female patients who chose their physician were slightly younger, less educated, and poorer than their male counterparts. They were also slightly less healthy as measured by the SF-12 physical and mental health scales. No differences in the percentage of minority patients or in the length of

Table 1. Patient Demographics* and Health Status* by Patient Gender and Primary Care Physician Gender: Members Who Chose Their Physician

	Female Patients		Male Patients				
					P Value†		
	Female Physicians (n = 1,007)	Male Physicians (n = 1,759)	Female Physicians (n = 248)	Male Physicians (n = 1,734)	Gender of Physician§	Gender of Patient‖	Interaction¶
Mean age, y	56.0	58.3	56.8	59.8	<.0001	.0001	.38
Mean education, y	14.1	13.8	14.3	14.3	.08	<.0001	.21
Mean annual household income, $	43,929	41,955	47,801	47,179	.11	<.0001	.45
White, %	81.9	78.9	82.2	84.5	.34	.24	.06
Physical Health Summary score‡, mean	46.2	45.5	47.7	46.9	.08	<.0001	.91
Mental Health Summary score‡, mean	50.9	51.3	51.2	52.1	.13	.03	.50
Years with physician	4.2	4.5	4.2	4.5	.10	.39	.44

**Adjusted for facility.*

†P values for physician and patient gender comparisons are from single multivariate regression models; the P value for the interaction of physician and patient gender was obtained by adding the interaction term to a subsequent model.

‡Physical and Mental Health Summary scores from SF-12; scores are T-scores with a mean of 50 and standard deviation of 10 in the U.S. general population. Higher scores represent better health.

§Patients of female physicians compared with patients of male physicians.

‖Female patients compared with male patients.

¶Interaction between gender of physician and gender of patient.

time patients had been with their physicians were demonstrated by either patient gender or physician gender.

In the analysis of patient characteristics, no significant interaction effects between physician gender and patient gender were demonstrated.

Similar differences in patient characteristics were also found among the patients who were assigned to their physician (Table 2). In addition, patients assigned to female physicians were slightly younger, better educated, wealthier, and had minimally better health than those assigned to male physicians. In general, patients who chose their physician were more likely to be white, and were slightly older, better educated, and healthier than patients who were assigned to a physician.

Health Values and Beliefs

Among patients who chose their physician, several health values and beliefs differed by patient gender and to a lesser extent, by the gender of their physician (Table 3). Female patients were much more likely than males to place a high value on physician communication skills and technical skills (Table 3). Female patients were substantially less likely than male patients to agree with the statement "I worry about my health more than other people my age."

Adjusting for patient gender, those who chose female physicians were slightly more likely to respond that physician emphasis on prevention of illness and promotion of good health was "more important than anything else." They were also slightly less likely to agree with the statement "I worry about my health more than other people my age." For both associations, the differences bordered on statistical significance.

Female patients differed from male patients in the same ways among patients who were assigned their physician. In addition, female patients in this group were significantly more likely than males to value prevention and less likely to agree that "recovery from illness requires good medical care more than anything else" (Table 4). There were no significant differences in health values and beliefs between patients of female and male physicians in the assigned group.

Patient Satisfaction

Patients who chose female physicians and those who chose male physicians were equally satisfied with their physician after adjusting for differences in patient demographics (including patient gender), health status, health values and beliefs, and physician demographics. (Table 5). Satisfaction ratings were also similar for female and male patients, with no significant differences for any measure by patient gender. However, there were important interactions between patient gender and physician gender. On the physician communication and technical skills scales, physician focus on prevention, and overall satisfaction, female patients who chose a female physician were less likely to be satisfied than patients in other dyads. Male patients who chose female physicians were most likely to be satisfied among the four dyads on these four measures. These interactions were highly statistically significant (Table 5, "interaction" column).

Although patients in the four dyads gave their physicians very different satisfaction ratings, reports were similar for the receipt of preventive services or health promotion across the four groups. The only significant difference was in health promotion, with female patients reported being less likely to receive counseling in lifestyle and psychosocial issues than their male counterparts regardless of the gender of their physician.

Patients who reported that they chose their physician

Table 2. Patient Demographics* and Health Status* by Patient Gender and Primary Care Physician Gender: Members Who Were Assigned Their Physician

	Female Patients		Male Patients		*P* Value†		
	Female Physicians (*n* = 816)	Male Physicians (*n* = 1,890)	Female Physicians (*n* = 359)	Male Physicians (*n* = 2,392)	Gender of Physician§	Gender of Patient‖	Interaction¶
Mean age, y	55.1	56.8	57.1	57.4	.03	.02	.09
Mean education, y	14.0	13.6	14.5	14.2	.0002	<.0001	.55
Mean annual household income, $	44,231	40,738	48,526	47,046	.0009	<.0001	.18
White, %	78.0	76.5	77.0	79.1	.82	.24	.20
Physical Health Summary score‡, mean	47.8	46.5	48.0	47.5	.02	.009	.35
Mental Health Summary score‡, mean	50.8	51.0	52.4	52.1	.97	<.0001	.47
Years with physician	4.1	4.4	4.1	4.4	.21	.53	.92

**Adjusted for facility.*

†P values for physician and patient gender comparisons are from single multivariate regression models; the P value for the interaction of physician and patient gender was obtained by adding the interaction term to a subsequent model.

‡Physical and Mental Health Summary scores from SF-12; scores are T-scores with a mean of 50 and standard deviation of 10 in the U.S. general population. Higher scores represent better health.

§Patients of female physicians compared with patients of male physicians.

‖Female patients compared with male patients.

¶Interaction between gender of physician and gender of patient.

Table 3. Patient Health Values/Beliefs* Regarding Primary Care Physicians by Gender of Patient and of Primary Care Physician: Members Who Chose Their Physician

	Female Patients		Male Patients		*P* Values†		
	Female Physicians (n = 1,007)	Male Physicians (n = 1,759)	Female Physicians (n = 248)	Male Physicians (n = 1,734)	Gender of Physician§	Gender of Patient‖	Interaction¶
Values regarding the physician							
Physician Communication Values score	25.5	25.5	23.1	20.1	.41	<.0001	.20
Physician Skills Values score	34.8	36.0	31.4	31.1	.54	.004	.63
Physician Prevention score	23.7	22.4	27.3	18.6	.04	.10	.03
Health beliefs‡							
I worry about my health more than other people my age.	20.6	26.7	34.9	33.7	.03	<.0001	.05
I will do just about anything to avoid going to the doctor.	21.2	22.1	19.8	21.5	.44	.56	.82
Recovery from illness requires good medical care more than anything else.	74.8	73.6	72.5	74.4	.82	.82	.36
Doctors relieve or cure only a few of the medical problems their patients have.	27.7	24.7	21.8	23.9	.33	.24	.17

**Adjusted for patient age, race, education, income, health status, and facility.*

†*P values for physician and patient gender comparisons are from single multivariate regression models; the* P *value for the interaction of physician and patient gender was obtained by adding the interaction term to a subsequent model.*

‡*Percentage who agreed or strongly agreed with the statement.*

§*Patients of female physicians compared with patients of male physicians.*

‖*Female patients compared with male patients.*

¶*Interaction between physician gender and patient gender.*

had higher satisfaction ratings overall than patients who were assigned to their physician. In contrast to patients who chose their physician, there were no significant differences in satisfaction across dyads among the group of patients who were assigned to their physician (Table 6). As in the group who chose a physician, there were almost no differences reported in delivery of preventive screening services. However, female patients again reported receiving

Table 4. Patient Health Values/Beliefs* Regarding Primary Care Physicians by Gender of Patient and of Primary Care Physician: Members Who Were Assigned Their Physician

	Female Patients		Male Patients		*P* Values†		
	Female Physicians (n = 816)	Male Physicians (n = 1,890)	Female Physicians (n = 359)	Male Physicians (n = 2,392)	Gender of Physician§	Gender of Patient‖	Interaction¶
Values regarding the physician							
Physician Communication Values score	24.1	23.6	18.7	18.9	.83	<.0001	.76
Physician Skills Values score	36.2	33.7	32.3	30.6	.12	.007	.73
Physician Prevention Values score	21.4	22.9	20.9	18.4	.98	.004	.17
Health beliefs‡							
I worry about my health more than other people my age.	20.8	25.5	38.2	34.1	.45	<.0001	.02
I will do just about anything to avoid going to the doctor.	25.6	26.0	23.7	24.2	.80	.18	.95
Recovery from illness requires good medical care more than anything else.	73.3	74.3	76.7	77.6	.54	.007	.99
Doctors relieve or cure only a few of the medical problems their patients have.	26.7	27.3	28.2	29.2	.67	.22	.96

**Adjusted for patient age, race, education, income, health status, and facility.*

†*P values for physician and patient gender comparisons are from single multivariate regression models; the* P *value for the interaction of physician and patient gender was obtained by adding the interaction term to a subsequent model.*

‡*Percentage who agreed or strongly agreed with the statement.*

§*Patients of female physicians compared with patients of male physicians.*

‖*Female patients compared with male patients.*

¶*Interaction between gender of physician and gender of patient.*

Table 5. Patient Satisfaction* and Patient-Reported Prevention Practices* by Gender of Patient and of Primary Care Physician: Members Who Chose Their Physician

	Female Patients		Male Patients		*P* Values†		
	Female Physicians (n = 1,007)	Male Physicians (n = 1,759)	Female Physicians (n = 248)	Male Physicians (n = 1,734)	Gender of Physician‡	Gender of Patient§	Interaction‖
Satisfaction item							
Physician Communication Satisfaction score	68.0	70.8	75.6	70.2	.75	.48	.007
Physician Skills Satisfaction score	63.0	68.8	73.5	67.1	.18	.68	.0002
Physician Prevention Satisfaction score	67.3	72.5	77.2	71.6	.28	.48	.004
Your overall satisfaction	74.0	79.4	84.9	79.5	.22	.12	.004
Recommend your physician to others?	87.9	90.5	91.6	90.1	.28	.64	.07
Prevention							
Breast exam	88.4	87.6	N/A	N/A	.66	N/A	N/A
Pelvic exam	80.5	79.0	N/A	N/A	.45	N/A	N/A
Flu shot (n = 1,478)	74.4	70.6	66.9	73.9	.28	.08	.16
Cholesterol (n = 1,598)	85.3	82.3	83.1	80.4	.51	.33	.92
Health promotion							
Lifestyle	49.9	49.7	62.5	60.6	.72	<.0001	.54
Social	14.8	14.0	25.5	20.0	.11	<.0001	.10

**Adjusted for patient age, race, education, income, health status, facility, health values and beliefs; and physician age, race, specialty, and part-time vs full-time status. N/A indicates not applicable.*

†P *values for physician and patient gender comparisons are from single multivariate regression models; the* P *value for the interaction of physician and patient gender was obtained by adding the interaction term to a subsequent model.*

‡*Patients of female physicians compared with patients of male physicians.*

§*Female patients compared with male patients.*

‖*Interaction between physician gender and patient gender.*

less lifestyle and psychosocial counseling from their physicians than male patients, irrespective of physician gender.

DISCUSSION

These analyses of patients' ratings of satisfaction with their primary care physician revealed almost no overall differences in satisfaction by either patient or physician gender. However, among the approximately 50% of respondents who had chosen their physician, a surprising and noteworthy interaction was observed between the gender of the patient and of the physician. Patients who chose a physician of the opposite gender tended to be more satisfied with their physician than patients who selected a physician of the same gender. For four of the five satisfaction measures, the least satisfied respondents were female patients of female physicians; on all five measures, the most satisfied were male patients of female physicians. This interaction was not seen among the patients who were assigned to their physician, suggesting that satisfaction may have been influenced by *expectations* among those who chose their physician. In a previous report from this study, we noted that patients who chose their physician differed from patients who had been assigned in placing a slightly greater value on the time spent with their physician and physician sensitivity.[26] This suggests that this group may have higher expectations for certain physician qualities.

Our study confirms previous reports[16–18] that female patients place a higher value than male patients on physicians' communication skills and personal manner. Female patients also appeared to value technical skills more highly than male patients in this sample. In this study, female patients were more likely to have chosen their physician than male patients and were much more likely to have chosen a female physician. These data suggest that in settings where patients choose their primary care physician, female physicians may acquire patient populations with greater expectations than those of their male counterparts. Other reports have also suggested that female patients may have different expectations of female physicians than of male physicians,[12,23] and in certain settings, female physicians have been shown to provide a different style of care than male physicians.[8–10]

Yet, female patients in our study were less satisfied with the female physicians they had chosen. One explanation for lower ratings may be that the female physicians in this study may not have achieved "gender-based" care ideals such as better communication on social, lifestyle, prevention, and emotional concerns. Patients who had selected female physicians hoping for such qualities would therefore be disappointed. Female physicians in another study have been shown to feel more time stress during medical visits than male physicians.[33] It has been speculated that when physicians are under time pressure, the

Table 6. Patient Satisfaction* and Patient-Reported Prevention Practices* by Gender of Patient and of Primary Care Physician: Members Who Were Assigned Their Physician

	Female Patients		Male Patients		*P* Value†		
	Female Physicians (*n* = 816)	Male Physicians (*n* = 1,890)	Female Physicians (*n* = 359)	Male Physicians (*n* = 2,392)	Gender of Physician‡	Gender of Patient§	Interaction‖
Satisfaction item							
Physician communication satisfaction score	53.7	53.8	55.8	54.2	.79	.59	.60
Physician skills satisfaction score	48.6	45.9	50.9	47.6	.15	.20	.86
Physician prevention satisfaction score	52.0	52.9	52.6	55.3	.53	.22	.65
Your overall satisfaction	58.7	58.9	62.9	62.0	.93	.052	.77
Recommend your physician to others?	71.3	69.4	75.9	71.4	.23	.11	.45
Prevention items							
Breast exam	86.0	88.4	N/A	N/A	.30	N/A	N/A
Pelvic exam	79.3	81.5	N/A	N/A	.99	N/A	N/A
Flu shot (*n* = 1,468)	63.1	59.4	61.4	65.1	.78	.43	.31
Cholesterol (*n* = 2,147)	82.5	74.9	79.2	73.4	.52	.03	.69
Health promotion							
Lifestyle	41.6	41.6	55.1	52.8	.62	<.0001	.48
Social	9.7	10.6	13.6	13.8	.51	<.0001	.72

**Adjusted for patient age, race, education, income, health status, facility, health values and beliefs; and physician age, race, specialty and part-time vs full-time status. N/A indicates not applicable.*

†P *values for physician and patient gender comparisons are from single multivariate regression models; the* P *value for the interaction of physician and patient gender was obtained by adding the interaction term to a subsequent model.*

‡*Patients of female physicians compared with patients of male physicians.*

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socioemotional aspects of care are those most likely to be neglected.[25] The productivity demands of physicians in this group-model HMO may make it difficult for female physicians to spend more time with their patients despite patient expectations. Female physicians in this study, as in many settings, were more likely to work part time. After adjusting for hours worked per week, they had larger effective panels of primary care patients than their male counterparts (1,552 patients for female physicians vs 1,388 patients for male physicians; $P = .006$). Difficulties encountered by female physicians trying to work less than full time have been documented elsewhere.[24] This additional workload may compound problems related to heightened patient expectations. To examine this possibility further, we looked at models of patient satisfaction that adjusted for physician panel size. In these analyses, we found that the differences across the dyads lessened somewhat, but all significant interactions remained significant (data not shown).

This does not explain the high degree of satisfaction expressed by the male patients of these same female physicians. Although few in numbers, their satisfaction scores were consistently the highest of the four physician-patient dyads. A possible explanation is that female physicians try harder to please this group of patients. Female physicians treating male patients have been shown to display a different manner,[34] including smiling more and acting more interested, than when treating female patients. Such style and practice differences may account for male patients' higher satisfaction. Another possible explanation is that patients may simply be more willing to express critical attitudes towards physicians of the same gender, regardless of their initial expectations. However, an argument against this interpretation is the restriction of the finding to patients who had chosen their physician. If a general tendency to be more critical toward persons of the same gender explained the interaction, we would expect to find a similar effect among patients who had been assigned.

We considered another explanation for the greater satisfaction observed in gender-discordant dyads. Patients who chose a physician of the opposite gender may have been selecting particular physicians who were known to be especially skilled, thereby inducing a patient to forego the more frequent inclination to choose a physician of the same gender and subsequently to report higher satisfaction. However, patients in this study who selected physicians of the opposite gender did not consistently choose the most popular physicians (i.e., those chosen most frequently) or the physicians with the highest overall satisfaction ratings (data not shown). To examine this possibility further, we also investigated models of patient satisfaction that adjusted for a "popularity" score, which was a measure of the proportion of patients in a physician's panel who

chose that physician (as opposed to being assigned). In this analysis, we found that the differences in satisfaction across the four dyads persisted.

Our study did not detect the differences in preventive care and health promotion practices between male and female physicians that have been reported in several previous studies.[1–7] Male and female patients in our study reported receiving similar levels of preventive screening and health promotion services regardless of whether their primary care physician was a woman or a man. This finding is consistent with a previous finding from this study that preventive and health promotion services did not differ according to the specialty of the primary care physician.[27] Other studies of physicians practicing primarily in office-based settings have found greater differences in primary care practices according to the gender or specialty of the physician.[1,35] The strong practice culture of this group-model HMO and system-level measures to enhance preventive care may attenuate the types of specialty and gender differences found in less-organized practice settings.

The study has several limitations. We did not ask patients directly what criteria they used in choosing a physician; it may be that the health values and beliefs surveyed in our study are not what drive the choice of a physician. We also did not ask patients whether they chose a physician based on the physician's gender; therefore, we cannot be certain that patients selected a physician looking for "gender-based" qualities. However, the greater physician-patient concordance on gender for women who chose their physician (36.4% vs 30.2%) than for those assigned suggests that among women, such factors may have been important. Finally, the cross-sectional nature of the analysis prevents us from excluding the possibility that patients' attitudes and beliefs may have been a result of their association with a physician of a specific gender, rather than a reason for choosing that physician.

CONCLUSION

This study reveals some differences in patient satisfaction that depended on the gender of the patient and of their physician. In this group-model HMO setting, female patients who chose female physicians were the least satisfied, while male patients who selected these same female physicians were the most satisfied. Although our study does not offer conclusive evidence about the explanations for these differences in patient satisfaction, it does suggest that female and male patients may have different expectations for care from their primary care physician. If such differences in patient expectations do exist, the difficulty of fulfilling these expectations within the constraints of a managed care environment may present particular challenges for female physicians. Future research should aim to further delineate possible gender differences in expectations about care both among patients and among the primary care physicians who serve them.

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